

CLAIMS

1. A fluorine-containing resin powder coating composition to be subjected to baking at 300°C or more, in which the fluorine-  
5 containing resin composition for forming a coating film comprises surface-treated rutile titanium oxide particles as a whitening agent.

2. The coating composition of Claim 1, wherein the surface-treated rutile titanium oxide particles are rutile titanium oxide surface-  
10 treated with aluminum oxide and/or silicon oxide.

3. The coating composition of Claim 1 or 2, wherein the fluorine-containing resin composition for forming a coating film comprises a fluorine-containing resin, a thermal stabilizer and surface-  
15 treated rutile titanium oxide particles.

4. The coating composition of Claim 3, wherein the fluorine-containing resin composition for forming a coating film comprises 0.3 to 3 parts by weight of the thermal stabilizer and 0.5 to 10 parts by weight  
20 of the surface-treated rutile titanium oxide particles based on 100 parts by weight of the fluorine-containing resin.

5. The coating composition of any of Claims 1 to 4, wherein the fluorine-containing resin is a perfluoro resin.

6. The coating composition of Claim 5, wherein the perfluoro resin is a melt-moldable perfluoro resin.

7. The coating composition of Claim 6, wherein the perfluoro resin is a copolymer of tetrafluoroethylene, perfluoro(alkyl vinyl ether) and/or hexafluoropropylene.

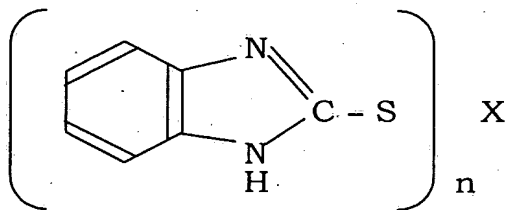
8. The coating composition of any of Claims 3 to 7, wherein the thermal stabilizer has a melting point of not less than 70°C.

9. The coating composition of any of Claims 3 to 8, wherein the thermal stabilizer comprises an organosulfurous thermal stabilizer, amine thermal stabilizer and/or metal powder thermal stabilizer.

10. The coating composition of Claim 9, wherein the organosulfurous thermal stabilizer and amine thermal stabilizer are used together.

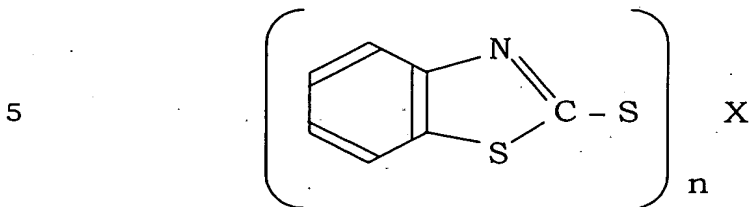
11. The coating composition of Claim 9, wherein the organosulfurous thermal stabilizer, amine thermal stabilizer and metal powder thermal stabilizer are used together.

12. The coating composition of any of Claims 9 to 11, wherein the organosulfurous thermal stabilizer is one or more of a benzimidazole mercaptan compound represented by the formula (I):



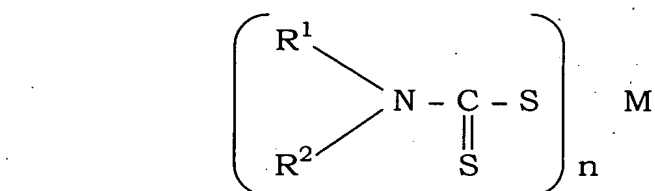
wherein X is H, Zn, Sn or Cd, n is an integer of 1 to 4,

a benzothiazole mercaptan compound represented by the formula (II):

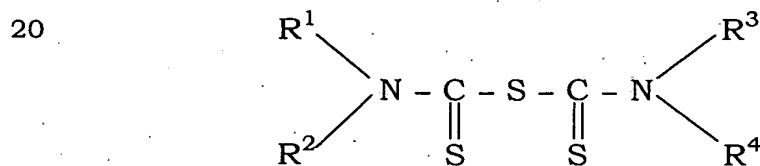


wherein X is H, Zn, Sn or Cd, n is an integer of 1 to 4,

10 a thiocarbamic acid represented by the formula (III):

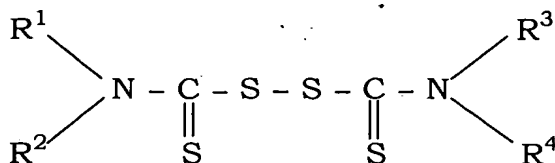


wherein  $\text{R}^1$  and  $\text{R}^2$  are an aryl group or alkyl group having 2 to 16 carbon atoms, M is Zn, Sn, Cd or Cu, n is an integer of 1 to 4, or a salt thereof, a thiuram monosulfide represented by the formula (IV):



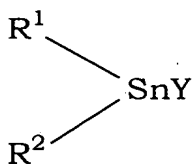
wherein  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$  and  $\text{R}^4$  are an aryl group or alkyl group having 2 to 16 carbon atoms,

25 a thiuram disulfide represented by the formula (V):



5 wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> are an aryl group or alkyl group having 2 to 16 carbon atoms, and

an organotin mercaptide compound represented by the formula (VI):



wherein Y is a mercaptan residue, R<sup>1</sup> and R<sup>2</sup> are the same or different and each is an aryl group or alkyl group having 2 to 16 carbon atoms.

13. The coating composition of Claim 12, wherein the organosulfurous thermal stabilizer is a benzothiazole mercaptan compound represented by the formula (II).

14. The coating composition of Claim 12, wherein the organosulfurous thermal stabilizer is a zinc salt of 2-mercaptobenzothiazole.

15. The coating composition of any of Claims 3 to 14, wherein  
25 the amine thermal stabilizer is an aromatic amine thermal stabilizer  
having three or more benzene rings.

16. The coating composition of Claim 15, wherein the aromatic amine thermal stabilizer is a compound having a melting point of not less than 80°C.

5           17. The coating composition of Claim 16, wherein the aromatic amine thermal stabilizer is 4,4-bis( $\alpha,\alpha$ -dimethylbenzyl)diphenylamine.

10           18. The coating composition of any of Claims 3 to 9 and 11 to 15, wherein the metal powder thermal stabilizer is one or more of cobalt powder, iron powder, zinc powder, tin powder and copper powder.

15           19. The coating composition of any of Claims 3 to 7, wherein the thermal stabilizer comprises the organosulfurous thermal stabilizer represented by the formula (II) and the aromatic amine thermal stabilizer having three or more benzene rings and a melting point of not less than 80°C.

20           20. The coating composition of Claim 19, wherein the thermal stabilizer comprises a zinc salt of 2-mercaptobenzothiazole and 4,4-bis( $\alpha,\alpha$ -dimethylbenzyl)diphenylamine.

25           21. The coating composition of Claim 19, wherein the thermal stabilizer comprises a zinc salt of 2-mercaptobenzothiazole and 4,4-bis( $\alpha,\alpha$ -dimethylbenzyl)diphenylamine in a weight ratio of 50/50 to 99/1.

SUB  
A<sub>2</sub> >

22. A coating film which is a fluorine-containing resin coating film obtained by applying the powder coating composition of any of Claims 1 to 21 and baking at 300°C or more and has a whiteness of 60 or more.

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23. The coating film of Claim 22, wherein the whiteness (L value) is 70 or more.

SUB  
A<sub>3</sub> >

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24. An article having the coating film of Claim 22 or 23 on a surface thereof.

25. A tank for medicines, foods and medical hygiene, which has the coating film of Claim 22 or 23 on an inner surface thereof.

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26. A chemical equipment and parts thereof having the coating film of Claim 22 or 23 on an outer surface thereof.

ADD  
A<sub>4</sub> >